



09/716,962

C-3202/2(PHA 4160.3)
PATENT

CoFC

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent of Michael S. South

Patent No. 6,870,056

Issued March 22, 2005

Confirmation No. 2205

For SUBSTITUTED POLYCYCLIC ARYL AND HETEROARYL PYRIDONES
USEFUL FOR SELECTIVE INHIBITIONS OF THE COAGULATION CASCADE

May 25, 2005

**REQUEST FOR EXPEDITED ISSUANCE
OF CERTIFICATE OF CORRECTION UNDER 37 CFR 1.322**

Certificate
JUN 06 2005
of Correction

TO THE COMMISSIONER FOR PATENTS,

SIR:

On studying the above-identified patent, the following errors, apparently made in part by applicant and in part by the Patent and Trademark Office, were found (these errors are also noted on the attached form PTO-1050):

**

On the Face of the Patent

(75) Inventors: "Qingjeng Zeng" should read -- Qingping Zheng --.

In column 167, claim 7, line 1, "wherein the" should read -- wherein the compound is --. (See Letter, page 7, claim 68, line 2).

In column 167, claim 11, line 34, "(N-2chlorobenzyl)carboxamido)phenyl," should read -- (N-(2-chlorobenzyl)carboxamido)phenyl, --.

(See Letter, page 8, claim 72, lines 2-3).

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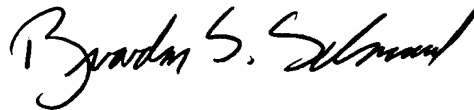
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REMARKS

In accordance with 37 CFR 1.322, a copy of a Letter to the Patent and
* Trademark Office dated October 24, 2003 is attached.

Since the error shown above marked with double asterisks was made by
applicant, the \$100.00 fee required under Rule 1.323 is enclosed. We respectfully
request that a certificate of correction be issued.

Respectfully submitted,



Bradley S. Schammel, Reg. No. 54,667
SENNIGER POWERS
One Metropolitan Square, 16th Floor
St. Louis, Missouri 63102
(314) 231-5400

CERTIFICATE OF MAILING

I hereby certify that the foregoing Letter to the Patent and Trademark Office in
the patent of Michael S. South, Patent No. 6,870,056, issued March 22, 2005 is being
deposited with the United States Postal Service as first class mail in an envelope
addressed to: Mail Stop Post Issue, Certificate of Corrections Branch, Commissioner
for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on this 25th day of
May, 2005.


Darlene Pearman

BSS/dep
*Enclosure

UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO. : 6,870,056 B1

Page 1 of 1

DATED : March 22, 2005

INVENTOR(S): Michael S. South et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Face of the Patent

(75) Inventors: "Qingiang Zeng" should read -- Qingping Zheng --.

Column 167

Claim 7, line 1, "wherein the" should read -- wherein the compound is --.

Claim 11, line 34, "(N-2chlorobenzyl)carboxamido)phenyl," should read
-- (N-(2-chlorobenzyl)carboxamido)phenyl, --.

MAILING ADDRESS OF SENDER:

PATENT NO. 6,870,056

Bradley S. Schammel
Senniger, Powers, Leavitt & Roedel
One Metropolitan Square, 16th Fl.
St. Louis, Missouri 63102

No. of additional copies



This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

JUN 7 2005



EL 998648644US

PHA 4160.3 (3202/2)
PATENT

Express Mail No. EL 998648644 US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of M. South et al.

Art Unit 1624

Serial No. 09/716,962

Filed November 20, 2000

Confirmation No. 2205

For SUBSTITUTED POLYCYCLIC ARYL AND HETEROARYL PYRIDONES
USEFUL FOR THE SELECTIVE INHIBITION OF THE COAGULATION
CASCADE

Examiner T. Truong

October 24, 2003

LETTER TO THE PATENT AND TRADEMARK OFFICE

TO THE COMMISSIONER FOR PATENTS,
Washington, D.C. 20231

SIR:

To correct the deficiency noted in the Notice of Non-Compliant Amendment dated September 29, 2003, applicants resubmit the "Amendments to the Claims" section in its entirety as filed in Amendment E, submitted on September 16, 2003. A
* copy of the Notice is enclosed for your convenience.

Amendments to the Claims begin at page 2 of this paper.

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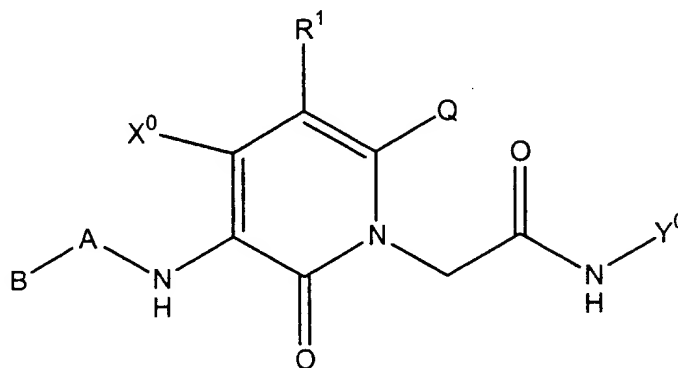
AMENDMENTS TO THE CLAIMS

This Listing of Claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-61 (cancelled)

Claim 62 (previously presented): A compound having the formula:



or a pharmaceutically acceptable salt thereof, wherein:

B is selected from the group consisting of hydrido, C2-C8 alkyl, C3-C8 alkenyl, C3-C8 alkynyl, and C2-C8 haloalkyl, wherein each member of group B is optionally substituted at any carbon up to and including 6 atoms from the point of attachment of B to A with one or more of the group consisting of R³², R³³, R³⁴, R³⁵ and R³⁶;

R³², R³³, R³⁴, R³⁵ and R³⁶ are independently selected from the group consisting of hydrido, acetamido, haloacetamido, amidino, guanidino, alkoxy, hydroxy, amino, alkoxyamino, alkylamino, alkylthio, amidosulfonyl, monoalkyl amidosulfonyl, dialkyl

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amidosulfonyl, alkyl, halo, haloalkyl, haloalkoxy, hydroxyalkyl, carboalkoxy, carboxy, carboxamido, cyano, and Q^b ;

A is selected from the group consisting of a single covalent bond and $(CH(R^{15}))_{pa}-(W^7)_{rr}$, wherein rr is an integer selected from 0 through 1, pa is an integer selected from 0 through 3, and W^7 is $N(R^7)$;

R^7 is selected from the group consisting of hydrido and alkyl;

R^{15} is selected from the group consisting of hydrido, halo, alkyl, and haloalkyl;

R^1 and X^0 are independently selected from the group consisting of hydrido, hydroxy, hydroxyamino, amidino, amino, cyano, hydroxyalkyl, alkoxy, alkyl, alkylamino, aminoalkyl, alkylthio, alkoxyamino, haloalkyl, haloalkoxy, and halo;

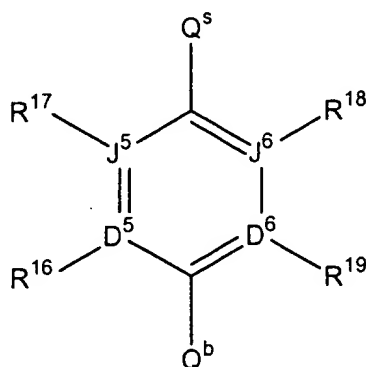
Q is selected from the group consisting of aryl and heteroaryl, wherein (a) a ring carbon in a first alpha position relative to the ring carbon at the point of attachment is optionally substituted by R^9 , (b) a ring carbon in a second alpha position relative to the ring carbon at the point of attachment is optionally substituted by R^{13} , (c) a ring carbon, in a first beta position relative to the ring carbon at the point of attachment and in an alpha position relative to the ring atom optionally substituted by R^9 , is optionally substituted by R^{10} , (d) a ring carbon, in a second beta position relative to the ring carbon at the point of attachment and in an alpha position relative to the ring atom optionally substituted by R^{13} , is optionally substituted by R^{12} , and (e) a ring carbon, if present, in the gamma position relative to the ring carbon at the point of attachment and in an alpha position relative to each of the ring atoms optionally substituted by R^{10} and R^{12} , respectively, is optionally substituted by R^{11} ;

R^9 , R^{11} and R^{13} are independently selected from the group consisting of hydrido, hydroxy, amino, amidino, guanidino, alkylamino, alkylthio, alkoxy, alkylsulfinyl, alkylsulfonyl, amidosulfonyl, monoalkyl amidosulfonyl, alkyl, halo, haloalkyl, haloalkoxy, hydroxyalkyl, carboxy, carboxamido, and cyano;

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R^{10} and R^{12} are independently selected from the group consisting of hydrido, acetamido, haloacetamido, amidino, guanidino, alkyl, alkoxy, alkoxyamino, aminoalkyl, hydroxy, amino, alkylamino, alkylsulfonamido, amidosulfonyl, monoalkyl amidosulfonyl, dialkyl amidosulfonyl, hydroxyalkyl, halo, haloalkyl, carboalkoxy, carboxy, carboxyalkyl, carboxamido, and cyano;

Y^0 is formula (IV):



(IV)

wherein D^5 , D^6 , J^5 , and J^6 are independently selected from the group consisting of C, N, O, S and a covalent bond with the provisos that no more than one is a covalent bond, no more than one of D^5 , D^6 , J^5 and J^6 is O, no more than one of D^5 , D^6 , J^5 and J^6 is S, one of D^5 , D^6 , J^5 , and J^6 must be a covalent bond when two of D^5 , D^6 , J^5 , and J^6 are O and S, and no more than four of D^5 , D^6 , J^5 , and J^6 are N, with the provisos that R^{16} , R^{17} , R^{18} , and R^{19} are each independently selected to maintain the tetravalent nature of carbon, the trivalent nature of nitrogen, the divalent nature of sulfur, and the divalent nature of oxygen;

R^{17} and R^{18} are independently selected from the group consisting of hydrido, amidino, guanidino, carboxy, haloalkylthio, alkoxy, hydroxy, amino, alkylamino,

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alkylthio, alkylsulfinyl, alkylsulfonyl, alkanoyl, haloalkanoyl, alkyl, halo, haloalkyl, haloalkoxy, hydroxyalkyl, aminoalkyl, and cyano;

R^{16} and R^{19} are independently selected from the group consisting of hydrido, amidino, guanidino, carboxy, haloalkylthio, alkoxy, hydroxy, amino, alkylamino, alkylthio, alkylsulfinyl, alkylsulfonyl, alkanoyl, haloalkanoyl, alkyl, halo, haloalkyl, haloalkoxy, hydroxyalkyl, aminoalkyl, cyano, and Q^b with the proviso that no more than one of R^{16} and R^{19} is Q^b at the same time and that Q^b is Q^{be} ;

Q^b is selected from the group consisting of $NR^{20}R^{21}$, Q^{be} wherein Q^{be} is hydrido, $N(R^{26})C(NR^{25})N(R^{23})(R^{24})$, and $C(NR^{25})NR^{23}R^{24}$;

R^{20} , R^{21} , R^{23} , R^{24} , R^{25} and R^{26} are independently selected from the group consisting of hydrido and alkyl; and

Q^s is CH_2 .

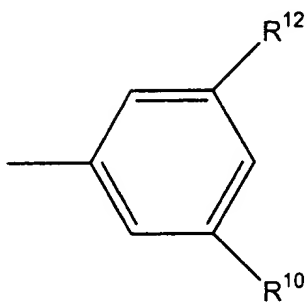
Claim 63 (previously presented): The compound of claim 62 wherein Y^0 is amidinoaralkyl or amidinoheteroaralkyl.

Claim 64 (previously presented): The compound of claim 63 wherein A is a single covalent bond, X^0 is hydrido and R^1 is hydrido or halo.

Claim 65 (previously presented): The compound of claim 64 wherein B is C2-C8 alkyl.

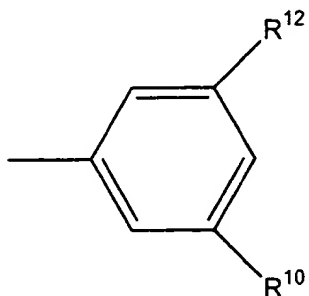
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Claim 66 (previously presented): The compound of claim 65 wherein Q is



and R¹⁰ and R¹² are independently selected from the group consisting of hydrido, acetamido, haloacetamido, amidino, guanidino, alkyl, alkoxy, alkoxyamino, aminoalkyl, hydroxy, amino, alkylamino, alkylsulfonamido, amidosulfonyl, monoalkyl amidosulfonyl, dialkyl amidosulfonyl, hydroxyalkyl, halo, haloalkyl, carboalkoxy, carboxy, carboxyalkyl, carboxamido, and cyano.

Claim 67 (previously presented): The compound of claim 63 wherein Q is

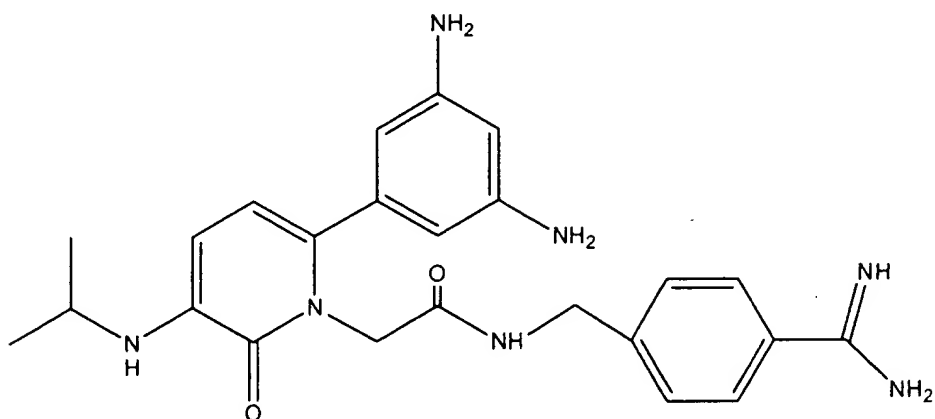


and R¹⁰ and R¹² are independently selected from the group consisting of hydrido, acetamido, haloacetamido, amidino, guanidino, alkyl, alkoxy, alkoxyamino, aminoalkyl, hydroxy, amino, alkylamino, alkylsulfonamido, amidosulfonyl, monoalkyl amidosulfonyl, dialkyl amidosulfonyl, hydroxyalkyl, halo, haloalkyl, carboalkoxy, carboxy, carboxyalkyl, carboxamido, and cyano.

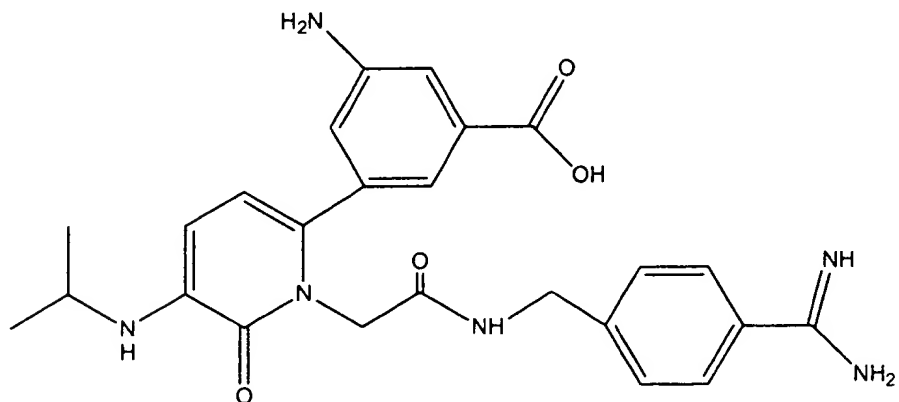
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dialkyl amidosulfonyl, hydroxyalkyl, halo, haloalkyl, carboalkoxy, carboxy, carboxyalkyl, carboxamido, and cyano.

Claim 68 (previously presented): The compound of claim 62 wherein the compound is,



Claim 69 (previously presented): The compound of claim 62 wherein the compound is



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Claim 70 (currently amended): The compound of claim 62 wherein Q is ~~3-amidocarbonyl-5-aminophenyl~~ 3-carboxamido-5-aminophenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro and X⁰ is hydrido.

Claim 71 (currently amended): The compound of claim 62 wherein Q is ~~3-amino-5-(N-benzylamidocarbonyl)phenyl~~ 3-amino-5-(N-benzylcarboxamido)phenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro and X⁰ is hydrido.

Claim 72 (currently amended): The compound of claim 62 wherein Q is ~~3-amino-5-(N-(2-chlorobenzyl)amidocarbonyl)phenyl~~ 3-amino-5-(N-(2-chlorobenzyl)carboxamido)phenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro and X⁰ is hydrido.

Claim 73 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-(N-(2-chlorobenzyl)amidosulfonyl)phenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro and X⁰ is hydrido.

Claim 74 (currently amended): The compound of claim 62 wherein Q is ~~3-amino-5-(N-(trifluoromethylbenzyl)amidocarbonyl)phenyl~~ 3-amino-5-(N-(trifluoromethylbenzyl)carboxamido)phenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro and X⁰ is hydrido.

Claim 75 (previously presented): The compound of claim 62 wherein Q is 3,5-diaminophenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro and X⁰ is hydrido.

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Claim 76 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-carboxyphenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro and X⁰ is hydrido.

Claim 77 (currently amended): The compound of claim 62 wherein Q is ~~3-amidocarbonyl-5-aminophenyl~~ 3-carboxamido-5-aminophenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 78 (currently amended): The compound of claim 62 wherein Q is ~~3-amino-5-(N-benzylamidocarbonyl)phenyl~~ 3-amino-5-(N-benzylcarboxamido)phenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 79 (currently amended): The compound of claim 62 wherein Q is ~~3-amino-5-(N-(2-chlorobenzyl)amidocarbonyl)phenyl~~ 3-amino-5-(N-(2-chlorobenzyl)carboxamido)phenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 80 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-(N-(2-chlorobenzyl)amidosulfonyl)phenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 81 (currently amended): The compound of claim 62 wherein Q is ~~3-amino-5-(N-(trifluoromethylbenzyl)amidocarbonyl)phenyl~~ 3-amino-5-(N-(trifluoromethylbenzyl)carboxamido)phenyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

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Claim 82 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-carboxy-2-thienyl, B is (S)-2-butyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 83 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-carboxy-2-thienyl, B is ethyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 84 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-carboxy-2-thienyl, B is 2-propenyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 85 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-carboxy-2-thienyl, B is isopropyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 86 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-carboxy-2-thienyl, B is 2-butyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 87 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-carboxy-2-thienyl, B is (R)-2-butyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 88 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-carboxy-2-thienyl, B is 3-pentyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

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Claim 89 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-carboxy-2-thienyl, B is tert-butyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 90 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-carboxy-2-thienyl, B is butyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is hydrido and X⁰ is hydrido.

Claim 91 (currently amended): The compound of claim 62 wherein Q is ~~3-amidocarbonyl-5-amino-2-thienyl~~ 3-carboxamido-5-amino-2-thienyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro or hydrido and X⁰ is hydrido.

Claim 92 (currently amended): The compound of claim 62 wherein Q is ~~3-amino-5-(N-benzylamidocarbonyl)-2-thienyl~~ 3-amino-5-(N-benzylcarboxamido)-2-thienyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro or hydrido and X⁰ is hydrido.

Claim 93 (currently amended): The compound of claim 62 wherein Q is ~~3-amino-5-(N-(2-chlorobenzyl)amidocarbonyl)-2-thienyl~~ 3-amino-5-(N-(2-chlorobenzyl)carboxamido)-2-thienyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro or hydrido and X⁰ is hydrido.

Claim 94 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-(N-(2-chlorobenzyl)amidosulfonyl)-2-thienyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro or hydrido and X⁰ is hydrido.

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Claim 95 (currently amended): The compound of claim 62 wherein Q is ~~3-amino-5-(N-(trifluoromethylbenzyl)amidocarbonyl)-2-thienyl~~ 3-amino-5-(N-(trifluoromethylbenzyl)carboxamido)-2-thienyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro or hydrido and X⁰ is hydrido.

Claim 96 (previously presented): The compound of claim 62 wherein Q is 3,5-diamino-2-thienyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro or hydrido and X⁰ is hydrido.

Claim 97 (previously presented): The compound of claim 62 wherein Q is 3-amino-5-carboxy-2-thienyl, B is 2-propyl, A is a single bond, Y⁰ is 4-amidinobenzyl, R¹ is chloro or hydrido and X⁰ is hydrido.

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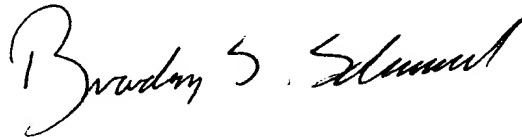
CONCLUSION

In order to bring the "Amendments to the Claims" section in compliance under 37 C.F.R. 1.121, applicants have recited that claims 1-61 have been cancelled in the Listing of Claims section.

In light of the foregoing, applicants respectfully request withdrawal of the objections to the claims and solicit an allowance of the claims. The Examiner is invited to contact the undersigned attorney should any issue remain unresolved.

The Commissioner is hereby authorized to charge any underpayment and credit any overpayment of government fees to Deposit Account No. 19-1345.

Respectfully submitted,

A handwritten signature in black ink, reading "Bradley S. Schammel". The signature is written in a cursive, flowing style.

Bradley S. Schammel, Reg. No. 54,667
SENNIGER, POWERS, LEAVITT & ROEDEL
One Metropolitan Square, 16th Floor
St. Louis, Missouri 63102
(314) 231-5400

EJH/BSS/vlm